So intent was the snake upon mastering the lizard, that it paid no attention to me, standing there as quietly as a statue. Several times the pursued lizard and the chasing snake passed across my feet. At one time, the lizard, on escaping from the snake, darted up a tall tree. The snake followed. Here the four articulated limbs of the former gave it a decided advantage. After darting up the tree for a short distance, the lizard paused and glanced backward. As soon as the snake had approached quite near, the lizard darted ahead a short distance and then again paused and glanced backward. These reciprocal movements were repeated several times. Then, all of a sudden, the snake dropped to the ground. The lizard continued to gaze downward. About a foot from the tree upon which the lizard was resting, head downward, there stood another tree. Spirally up this trunk the snake quietly and slowly climbed, until it was a few inches above the level of the lizard. The unsuspecting lizard was scrutinizingly gazing downward. Quietly and quickly the snake extended the front portion of its body, and, with a sudden dart of the head, knocked the lizard to the ground. Before the latter had time to recover from the effect of the unexpected blow, the snake had dropped to the ground and recaptured it. The lizard was not yet conquered; but this article is concerned only with the behavior up to this point.

This behavior puzzled me for a number of years. I was reluctant to call it an exhibition of logical judgment; yet it seemed entirely too complex to be regarded as reflex action and too individualistic to be considered instinctive, in the ordinary sense. From the nature of the case, tropisms, as defined by Loeb, are out of the question. Nor could it be considered a "trial and error" response; for there is no series of errors followed by a blundering into a solution and a gradual "stamping in" of the appropriate response.

The problem that confronted this snake was how to overpower that lizard. Until the lizard climbed the tree, the follow-the-stimulus movements, which were either instincts or habits, were sufficient to cause the capture of the lizard: but, the moment the latter ascended the trunk of that tree, those movements, unmodified, were inadequate. Suddenly the behavior of the snake changed. It paused, then immediately met the situation with a response which was a special modification to suit a special circumstance; and this is what we mean by a practical judgment.

I am well aware that some will call this an anecdote and desire to throw it out of court, because it was not conducted in a laboratory, under laboratory conditions, and because we do not know the whole past history of the snake and its ancestors. Nevertheless, I am coming more and more to believe that ignoring the spontaneous behavior of animals in their natural environments hinders rather than helps the solution of the problems of animal behavior; for, it is in just these situations that the animals are apt to be resourceful. More caution is needed to interpret behavior in the open than under laboratory control; but the difficulties of the task furnish no excuse for avoiding it. I am a stanch advocate of laboratory work; but, at the same time, I feel that data derived from accurate field work are of greater value than many seem to think. Accurate observations made, by trained observers, in the field furnish us with stubborn facts that should not be ignored; they need to be interpreted in an unprejudiced manner. Laboratory work and field work should go hand in hand.

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Summer High School,
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April 29, 1909

QUOTATIONS

INCORPORATED BENEFACTORS

Benefactors die; universities abide. At least, that has been the case in the past. But in this age of organization, benefactors have learned to perpetuate themselves as corporations. And we now have institutions chartered by acts of congress to disburse for educational purposes the charities of millionaires. The rich philanthropist, who objectifies himself in such a benevolent corporation, of

course, names the trustees; and subsequent vacancies in the board are filled by cooptation. This is a new species of corporation; but the two or three already organized hold large funds, which are likely to be greatly augmented in the future. And there is no limit to the number of such corporations, except the limit to the number of persons who possess wealth and desire to distribute it in this fashion.

I can not but think that these corporations create a new and dangerous situation for the independent and privately endowed universities. Just in proportion as these are supported by those benevolent corporations is their center of gravity thrown outside themselves. It is no longer a case of a rich man giving his money, going his way (eventually dying), and leaving the university free to manage its own affairs. The purse strings are now controlled by an immortal power, which makes it its business to investigate and supervise, and which lays down conditions that the university must accept if it is to receive grants of money. An irresponsible, self-perpetuating board, whose business is to dispense money, necessarily tends to look at every question from the pecuniary point of view; it wants its money's worth; it demands immediate and tangible results. Will not its large powers and enormous influence in relation to the institutions dependent upon it tend to develop in it an attitude of patronage and a habit of meddling? The very ambition of such a corporation to reform educational abuses is itself a source of danger. Men are not constituted educational reformers by having millions to spend. And, indeed, an irresponsible, self-perpetuating board of this sort may become a real menace to the best interests of the higher education. In the fancied interests of capital, or religion, or of education itself, it may galvanize the intellectual life of the institution it undertakes to foster.

A board of this kind should be answerable to the public, like the regents of a state university. Or, better still, let the millionaire trust the boards of trustees of colleges and universities and give them outright the capital he intends to devote to educational purposes. I believe that in all cases this plan would be best for education and best for the public interest. I make no exception of the Carnegie Foundation for the Advancement of Teaching, to which Mr. Carnegie has given such large endowment for the pensioning of professors in the colleges, technical schools and universities of the United States and Canada. And I certainly speak with no prejudice, as I regard that endowment as the best thing any benefactor has ever done for higher education in America, and I have myself the honor of being one of the trustees. But I look with concern and anxiety on the influence of such corporations on the free and independent life of our institutions of learning and research.—President Jacob G. Schurman, of Cornell University, in an address before the National Association of State Universities.

SCIENTIFIC BOOKS

The Absorption Spectra of Solutions. By HARRY C. JONES and JOHN A. ANDERSON. Publication No. 110, Carnegie Institution, Washington, D. C. 1909.[1]

This investigation of absorption spectra represents another chapter in that study of solutions, to which Professor Jones and his coworkers have so indefatigably applied themselves. Here, as before, the guiding idea has been to obtain evidence for or against the existence of *hydrates,* or more generally, of *solvates* in solution.

To investigate a system in this way, that is, by observing the effect produced by the system upon light which has passed through it, has one decided advantage. It does not in any way disturb the state of the system. When we shall understand more thoroughly the mechanism of this absorption, such a method may become not only a very rapid, but also a very accurate and elegant means of analysis. Even in our present deep ignorance in regard to this phenomenon it can often furnish us important information, as the authors of the monograph under discussion have amply demonstrated.

[1] A somewhat abridged account of this investigation has appeared in the March and April numbers of the *American Chemical Journal* of this year (1909).